


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06-26-01

PTO/SB/05 (03-01)

Approved for use through 10/31/2002. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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UTILITY PATENT APPLICATION TRANSMITTAL		Attorney Docket No. 262/091
		First Inventor Heng-Yu Jian, et al.
Title		REDUCING THE PEAK-TO-AVERAGE POWER RATIO OF A COMMUNICATION SIGNAL
(Only for new nonprovisional applications under 37 C.F.R. 1.53(b))		Express Mail Label No. EL844592480US

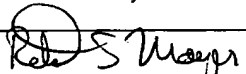
APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.		ADDRESS TO: Commissioner for Patents Box Patent Application Washington, DC 20231	
<p>1. <input checked="" type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing)</p> <p>2. <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p>3. <input checked="" type="checkbox"/> Specification [Total Pages 36] (preferred arrangement set forth below) - Descriptive title of the Invention - Cross Reference to Related Applications - Statement Regarding Fed sponsored R & D - Reference to sequence listing, a table, or a computer program listing appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure</p> <p>4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets 9]</p> <p>5. Oath or Declaration [Total Pages] a. <input type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from a prior application (37 CFR 1.63 (d)) (for a continuation/divisional with Box 18 completed) i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</p> <p>6. <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76</p>		<p>7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)</p> <p>8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. <input type="checkbox"/> Computer Readable Form (CRF) b. Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or ii. <input type="checkbox"/> paper c. <input type="checkbox"/> Statements verifying identity of above copies</p> <p>ACCOMPANYING APPLICATIONS PARTS</p> <p>9. <input type="checkbox"/> Assignment Papers (cover sheet & document(s))</p> <p>10. <input type="checkbox"/> 37 C.F.R. §3.73(b) Statement <input type="checkbox"/> Power of (when there is an assignee) Attorney</p> <p>11. <input type="checkbox"/> English Translation Document (if applicable)</p> <p>12. <input type="checkbox"/> Information Disclosure <input type="checkbox"/> Copies of IDS Statement (IDS)/PTO-1449 Citations</p> <p>13. <input type="checkbox"/> Preliminary Amendment</p> <p>14. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized)</p> <p>15. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed)</p> <p>16. <input type="checkbox"/> Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent</p> <p>17. <input checked="" type="checkbox"/> Other: Certificate of Mailing (37 C.F.R. § 1.10); Appendix A; and Lyon & Lyon Check No. 14234 for \$1,678.00</p>	

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: ____ /
Prior application information: Examiner ____ Group / Art Unit: ____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number or Bar Code Label			 (Insert Customer No. or Attach bar code label here)		
or <input type="checkbox"/> Correspondence address below					
Name	Robert S. Mayer, Esq. 22249				
PATENT TRADEMARK OFFICE					
Address	Lyon & Lyon, LLP 633 West Fifth Street, Suite 4700				
City	Los Angeles	State	California	Zip Code	90071-2066
Country	U.S.	Telephone	(914) 681-8851	Fax	(914) 686-4488

Name (Print/Type)	Robert S. Mayer	Registration No. (Attorney/Agent)	38,544
Signature		Date	June 25, 2001

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WP-14667.1

FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

Complete if Known

TOTAL AMOUNT OF PAYMENT (\$) 1,678.00

Application Number
Filing Date June 25, 2001
First Named Inventor Heng-Yu Jian, et al.
Examiner Name
Group / Art Unit
Attorney Docket No. 262/091

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:
- Deposit Account Number 12-2475
- Deposit Account Name Lyon & Lyon
- ☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17
- ☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☒ Payment Enclosed:

- ☒ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	710
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) (\$) 710

2. EXTRA CLAIM FEES

Total Claims	56	-20**	=	360	X	18	=	648
Independent Claims	7	-3**	=	4	X	80	=	320
Multiple Dependent			X	0	=	0		

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 968

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	130	123	130	Petitions related to provisional applications	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0

SUBMITTED BY

Complete (if applicable)

Name (Print/Type) Robert S. Mayer Registration No. Attorney/Agent 38,544 Telephone (914) 681-8851
Signature [Signature] Date June 25, 2001

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

CERTIFICATE OF MAILING VIA EXPRESS MAIL (37 C.F.R. §1.10)

I hereby certify that this paper, together with the following papers:

Utility Patent Application Transmittal (1 page);

Fee Transmittal Form (1 page);

Specification (36 pages);

Drawings (9 pages);

Appendix A (3 pages);

Lyon & Lyon Check No. 14234 for \$1,678.00; and

Return Receipt Postcard

are being deposited with the United States Postal Service on the date shown below with sufficient postage as 'Express Mail Post Office To Addressee' in an envelope addressed to the Box Patent Application, Commissioner for Patents, Washington, D.C. 20231.

EL844592480US

Express Mail Label No.

June 25, 2001

Date of Deposit

Marc Anthony Ramirez-Cruz

Name of Person Mailing Paper

Signature of Person Mailing Paper

105290-56/88860

TDS250-56499960 APPENDIX A

```

decrest.m

function [Cxde, th]=decrest(X,NUM_CHAN)

z=20*log10(max(abs(X))/rms(abs(X)));
disp(sprintf(' Baseband Peak to Average Ratio before decresting= %1.3f dB ',z));
%disp(sprintf(' rms of the original signal %1.0f ',rms(X)));
%disp(sprintf(' peak of the original signal %1.0f ',max(abs(X))));

amp=abs(X);
phase=angle(X);

if NUM_CHAN > 1
    fp=1.8e6;
    dec=6;
    th=rms(amp)*10^(dec/20);
    Be=firls(16, [0 fp fp+130e3 (1.2288e6*2)]/(1.2288e6*2), [1 1 0 0], [1 1e3]);
else
    fp=0.6e6;
    dec=4.1;
    th=rms(amp)*10^(dec/20);
    Be=firls(16, [0 fp fp+130e3 (1.2288e6*2)]/(1.2288e6*2), [1 1 0 0], [1 1e3]);
end

%disp(sprintf(' threshold %1.0f ',th));
%Decresting filter
Be=Be/max(Be);
Bx=zeros(16,1); Bx(16/2+1)=1;

%First stage Decresting
I=find(amp<=th);
Er(I)=0;
J=find(amp>th);
Er(J)=amp(J)-th;
%disp(sprintf(' rms of the peak signal %1.0f ',rms(Er)));

Er2=[Er(2:end) Er(1)];
Er3=[Er(end) Er(1:end-1)];

```

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```

K=find(Er>Er2 & Er>Er3);
E=zeros(size(Er));
E(K)=Er(K);
E=E.*exp(j*phase);

E1=filter(Be,1,E);
X=filter(Bx,1,X);
X=X-E1;

k=find(abs(X)>th);
%disp(sprintf(' Number of peaks not decrested = %ld ',length(k)));
%figure; plot(filter(Bx,1,abs(Er))); hold on; plot(abs(filter(Be,1,E)),'r--'); %plot((filter(Bx
,1,abs(Er))-(abs(filter(Be,1,E)))), 'g--');

z=20*log10(max(X)/rms(X));
%disp(sprintf(' Baseband Peak to Average Ratio after first decresting= %1.3f dB ',z));

%Second stage Decresting
amp=abs(X);
signal
phase=angle(X);

I=find(amp<=th);
Er(I)=0;
J=find(amp>th);
Er(J)=amp(J)-th;

Er2=[Er(2:end) Er(1)];
Er3=[Er(end) Er(1:end-1)];
K=find(Er>Er2 & Er>Er3);
E=zeros(size(Er));
E(K)=Er(K);
E=E.*exp(j*phase);

E2=filter(Be,1,E);
X=filter(Bx,1,X);

```

decrest.m
% find the local peak

% the amplitude of the

% find the local peak

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decrest.m

```
Cxde=X-E2;

k=find(abs(Cxde)>th);
disp(sprintf(' Number of peaks not decrested = %1d ',length(k)));
%figure; plot(filter(Bx,1,abs(Er))); hold on; plot(abs(filter(Be,1,E)), 'r--'); plot((filter(Bx,
1,abs(Er))-(abs(filter(Be,1,E)))),'g--');

z=20*log10(max(Cxde)/rms(Cxde));

disp(sprintf(' rms of the error signal %1.0f ',sqrt(rms(E1)^2+rms(E2)^2)));
%disp(sprintf(' rms of the decrested signal %1.0f ',rms(Cxde)));
%disp(sprintf(' peak of the decrested signal %1.0f ',max(abs(Cxde))));
disp(sprintf(' Baseband Peak to Average Ratio after second decresting= %1.3f dB ',z));
```